

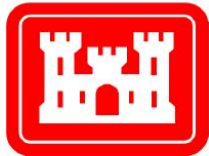


Indiana Silver Jackets Flood Inundation Mapping Program

Scott Morlock

Deputy Director, USGS Indiana Water Science Center

Federal and National Partners



FEMA



Many Agencies



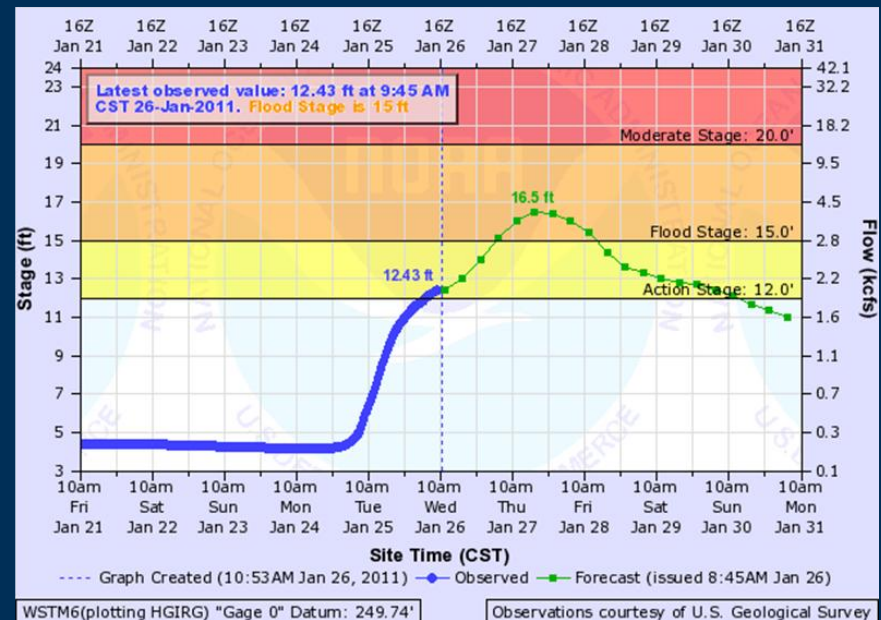
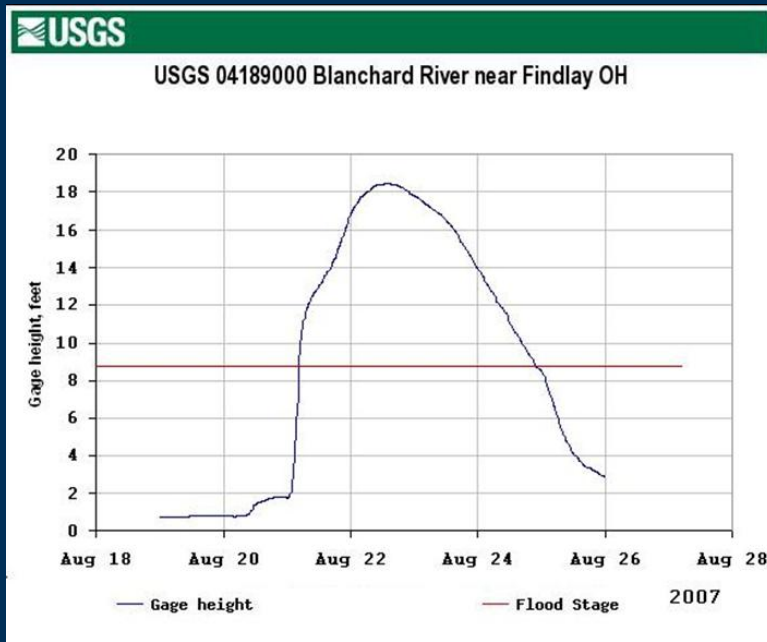
One Solution

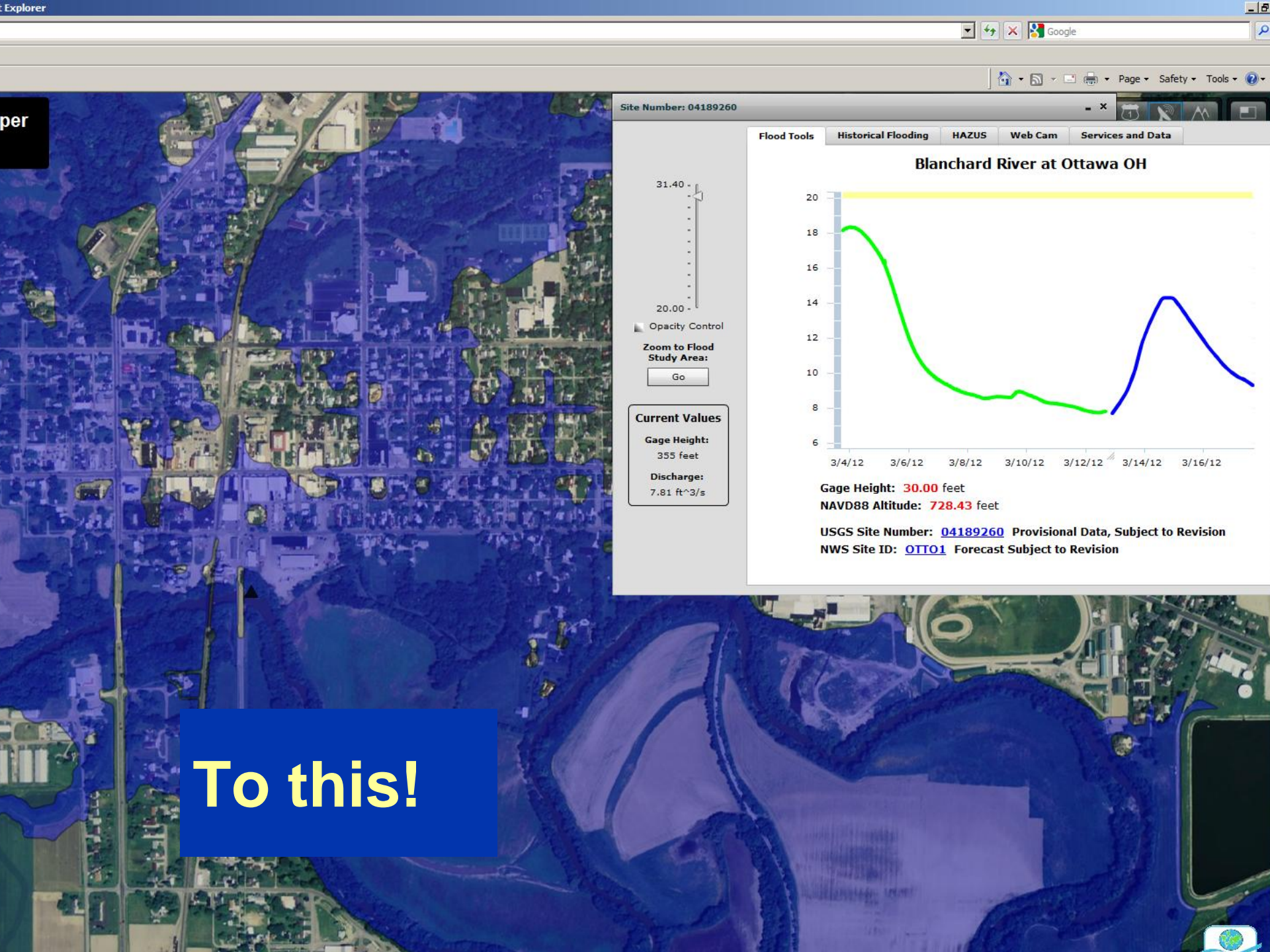
State, Local, and Educational Partners



Real-time and Forecast Flood Inundation Mapping

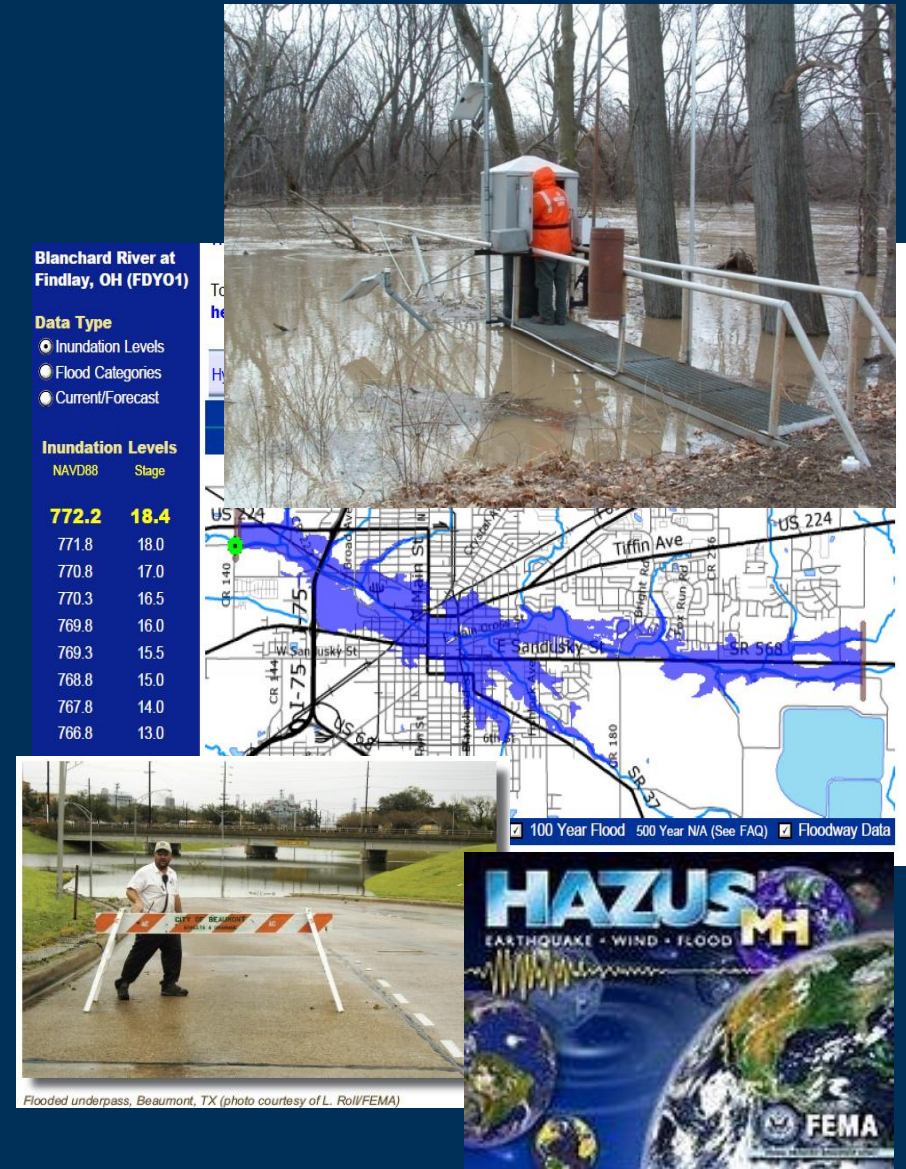
From this:



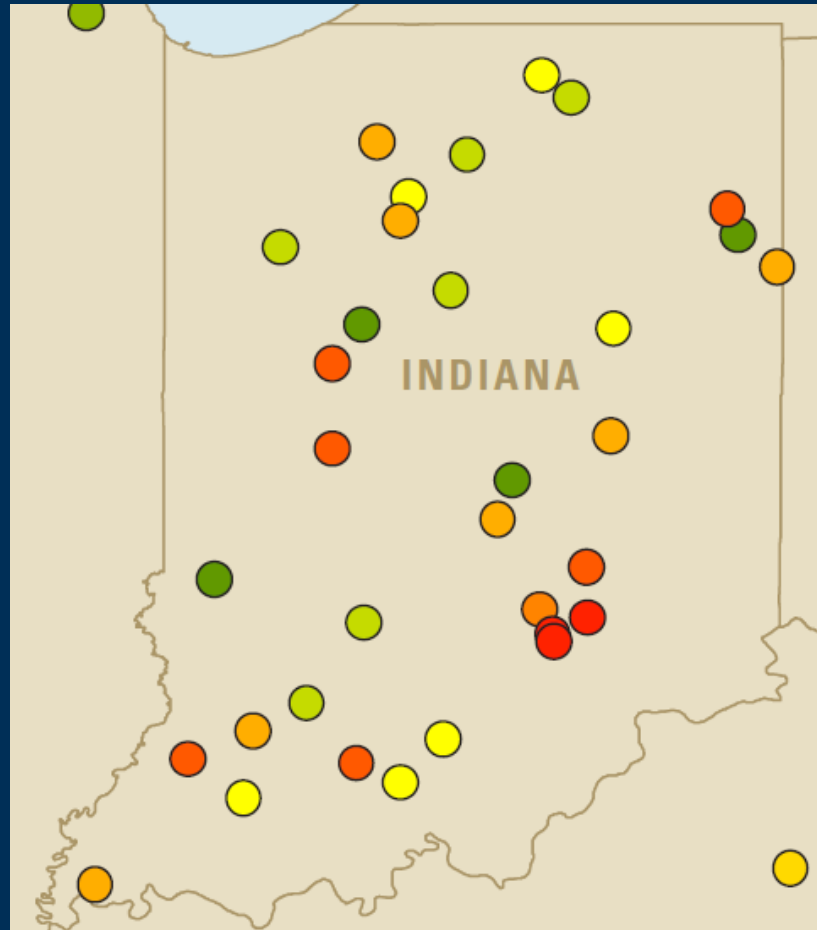


I.M. becomes a tool for flood.....

- Preparedness
 - “What-if” scenarios
- Response
 - Tied to gage & forecast data
- Recovery
 - Damage assessment
- Mitigation & planning
 - Flood risk analyses



34 Sites across Indiana



Funding and In-kind Resources



INDIANA OFFICE OF
Community & Rural Affairs
Where Rural Matters



INDIANA DEPARTMENT OF
NATURAL RESOURCES



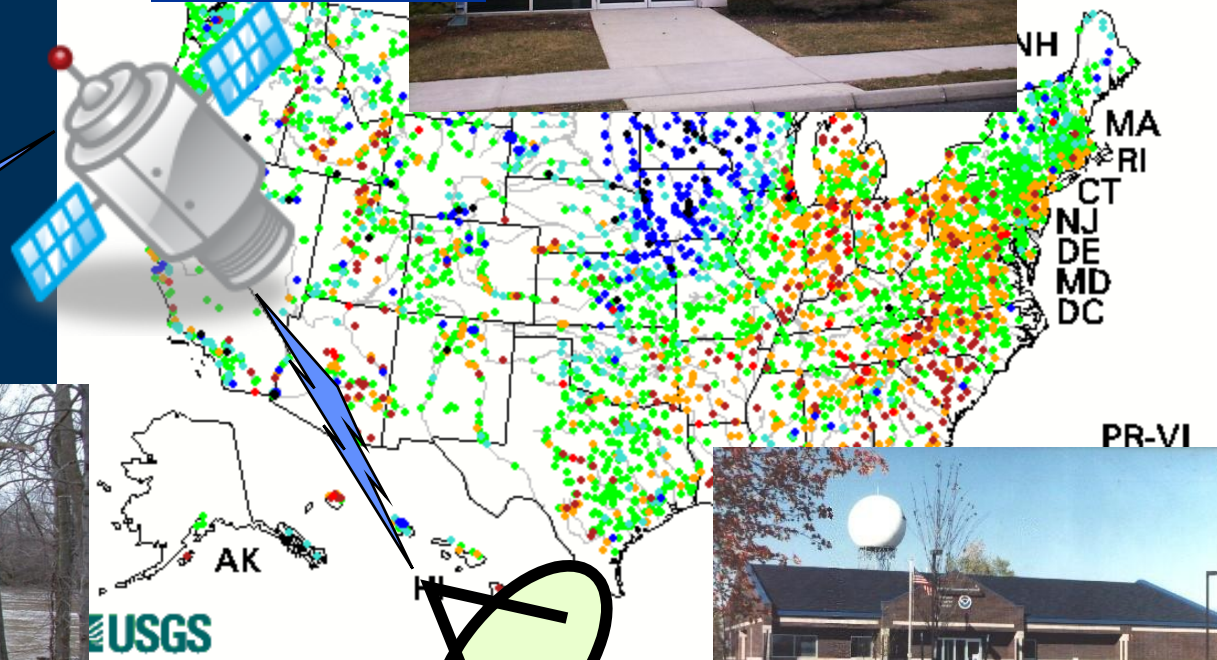
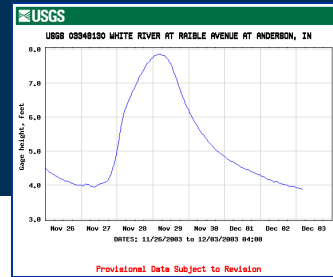
US Army Corps
of Engineers®



Flood Inundation Mapping Program

- 1. Consistent visual and electronic format for USGS inundation geospatial products.**
- 2. Static flood inundation map libraries linked to gages/flood forecasts**
- 3. State-of-the art dynamic, real-time flood inundation applications (pilot)**
- 4. A core of USGS and partner agencies – NWS, U.S Army Corps of Engineers, FEMA**
- 5. National USGS FIM Web portal and Web Mapper**

Static Inundation Map Libraries



USGS streamgages: 8000 points

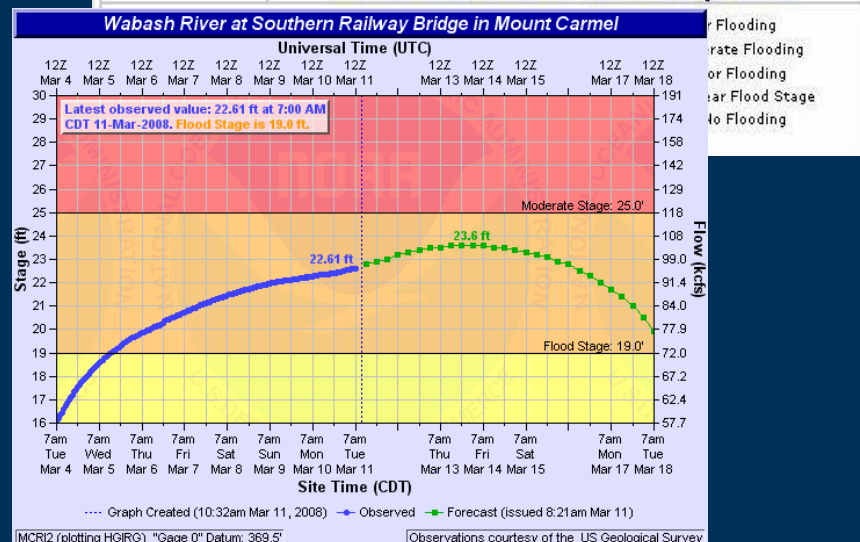
NWS AHPS: Advanced Hydrologic Prediction Service

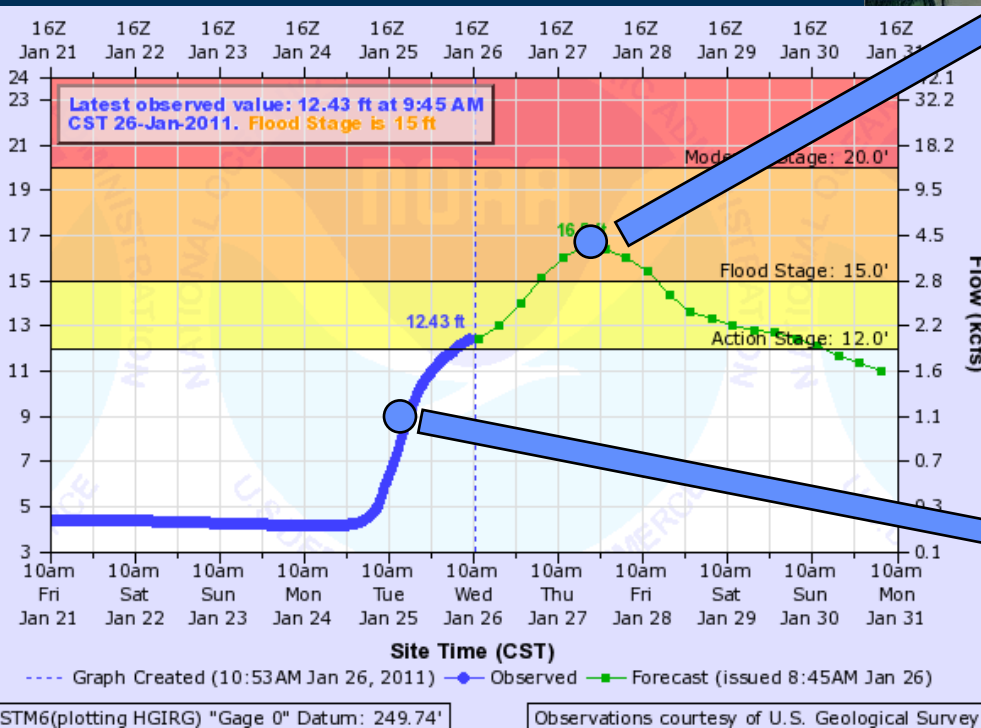
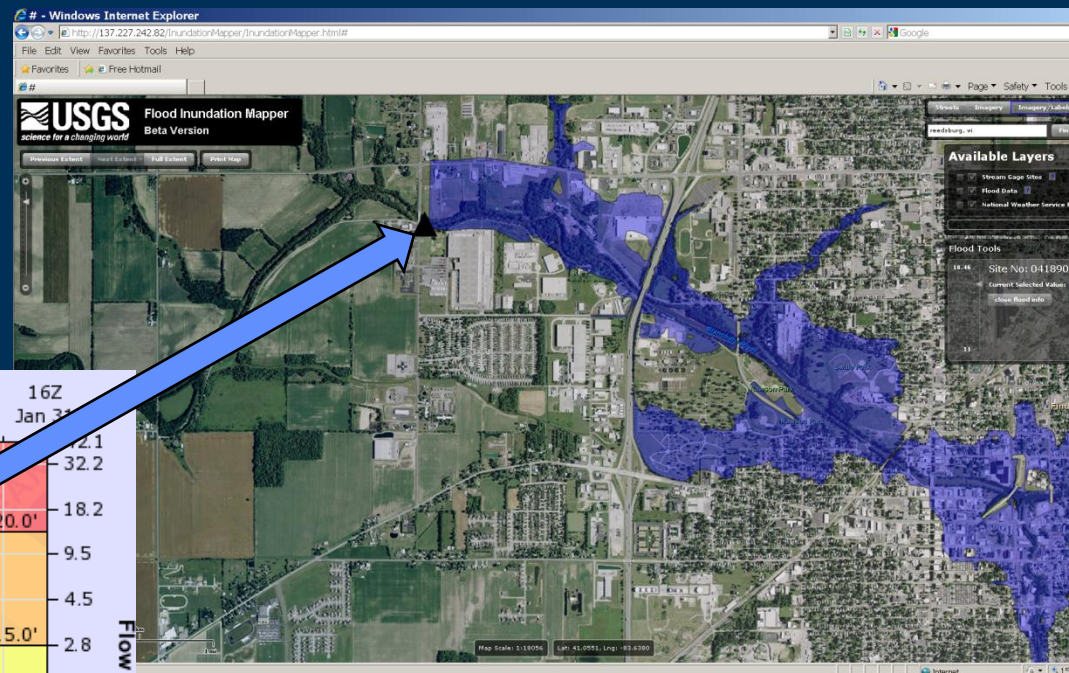
- Forecast stage at flood forecast points
- Most collocated at USGS gages

<http://www.weather.gov/ahps/>

Flood Safety Awareness Week: March 17-22

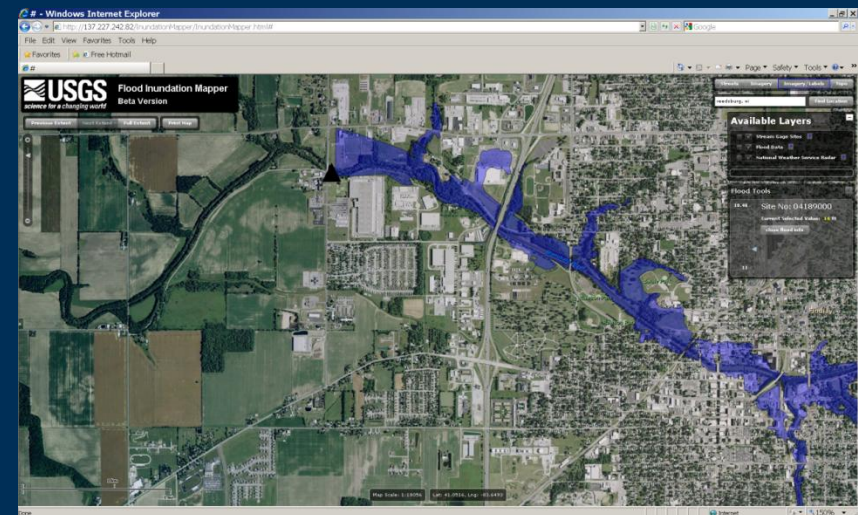
Society continues to build homes and businesses in floodplains which are vulnerable to flooding. This increases the need for more accurate and timely hydrologic information including flood and flash flood watches and warnings. See what the National Weather Service is doing to protect lives and property. Details... <http://www.weather.gov/floodsafety/>







Creation of Inundation-map Libraries

- DEMs (LiDAR) + hydraulic model
- Gage/HWM calibration data
- GIS generated maps
 - bankfull-record stage
 - Predefined map interval
- Linked to USGS real-time gage and NWS flood forecast




Web Portal



USGS Home
Contact USGS
Search USGS

USGS Flood Inundation Mapping Science

home focus areas links contact internal



FLOOD-INUNDATION PROJECTS

Georgia

- ◆ Flint River at Albany

Illinois

- ◆ Du Page County
- ◆ Lake County

Indiana

- ◆ Flood of June 7-9, 2008

Kansas

- ◆ Cowskin Creek, Wichita

Missouri

- ◆ Upper Blue River, Indian Creek, and Dyke Branch

North Carolina

- ◆ LIDAR Applications, Tar River Basin
- ◆ Tar River Basin Mapping
- ◆ Tar River Basin Mapping (NOAA/NWS/AHPS)

Ohio

- ◆ Blanchard River, Findlay
- ◆ Blanchard River, Findlay (NOAA/NWS/AHPS) -

Washington

U.S. Geological Survey Flood Inundation Mapping Science

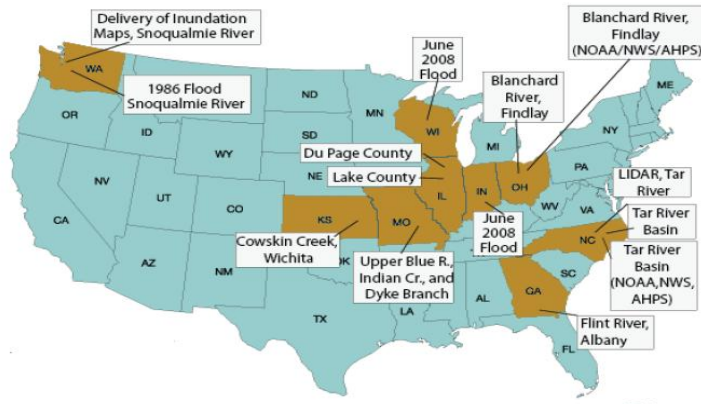
A powerful new tool for flood response and mitigation are digital geospatial flood-inundation maps that show flood water extent and depth on the land surface. Because floods are the leading cause of natural-disaster losses, the U.S. Geological Survey (USGS) is actively involved in the development of flood inundation mapping across the Nation pursuant to its major science strategy goal of reducing the vulnerability of the people and areas most at risk from natural hazards. Working with partners including the National Weather Service (NWS), U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA), state agencies, local agencies, and universities, the USGS is providing flood inundation mapping science resources to help build more resilient communities.

USGS Flood Inundation Mapping Science Focus Areas

The USGS is working in the following focus areas for flood inundation mapping science:

- ◆ [Flood documentation studies](#)
- ◆ [Static flood-inundation map libraries](#)
- ◆ [Real-time dynamic flood inundation mapping](#)

USGS Flood Inundation Mapping Science Projects, by State



FIM Web Mappers

Advanced Hydrologic Prediction Service: Philadelphia/Mount Holly: Delaware River at Trenton - Windows Internet Explorer

http://water.weather.gov/ahps2/inundation/inundation_google.php?gage=tren4

File Edit View Favorites Tools Help

Favorites Advanced Hydrologic Prediction Service: Philadelphia/...



National Weather Service

Advanced Hydrologic Prediction Service

Home

News

Organization

Search for:

Delaware River at Trenton, NJ (TREN4)

Data Type

- ☒ Inundation Levels
- ☐ Flood Categories
- ☐ Current/Forecast

Inundation Levels

NAVD88 Stage

33.5* 34.6*

32.9* 34.0*

31.6* 32.7*

30.2* 31.3*

Record Crest: 30.6

29.0 30.1

27.8 28.9

26.6 27.7

25.4 26.5

24.2 25.3

Major Flooding Begins

23.5 24.6

23.0 24.1

22.5 23.6

Weather Forecast Office Philadelphia/Mount Holly, NJ

Middle Atlantic River Forecast Center

Hydrograph

River at a Glance

Download

Inundation Mapping

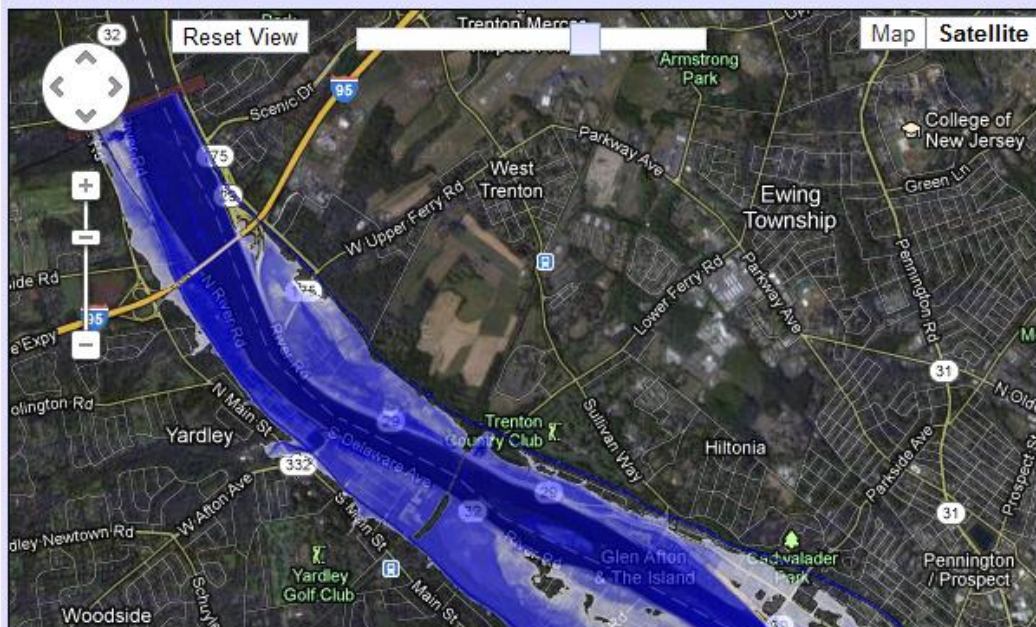
Weekly Chance of Exceeding Levels

Chance of Exceeding Levels During Entire Period

How to print this map

Find your location by address or ZIP code:

Go

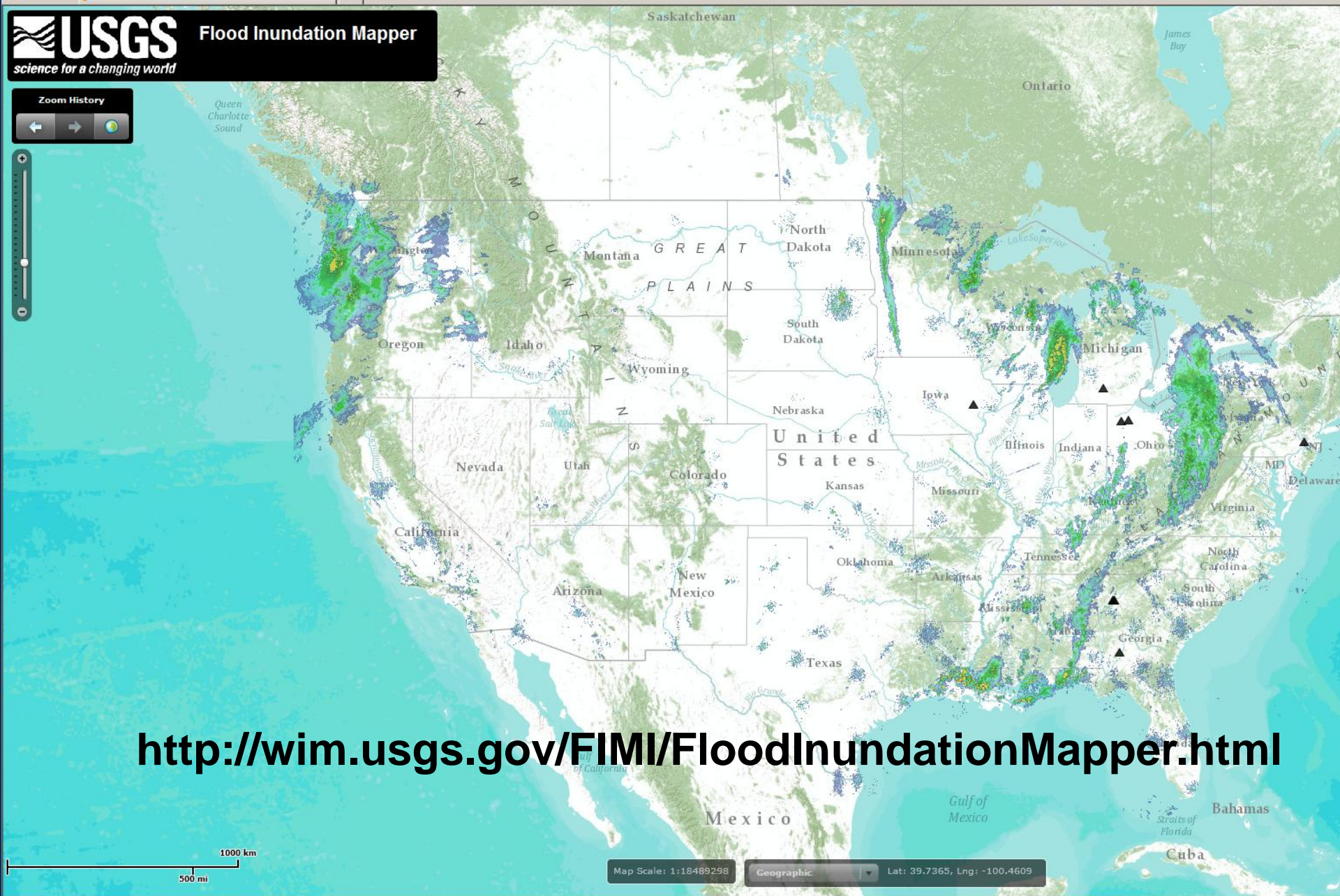


Gauge Location

http://water.weather.gov/ahps/inundation.php



Zoom History



<http://wim.usgs.gov/FIMI/FloodInundationMapper.html>

FIM Mapper Features

- View USGS real-time and NWS forecast* stages

*If the site is a flood forecast point

- Get historic flood peaks
- Download the GIS maps for use in your applications
 - (FGDC compliant metadata)
- Download/print PDF maps
- Pull HAZUS information
 - If site has the HAZUS feature

Program Building

- With 200 gages and almost 100 flood forecast points, much work remains
- We hope to continue building libraries in collaboration with the public and private sector
- Think about leveraging efforts such as Risk Map projects to build libraries



Thank you!

Indiana Inundation Project Site:

<http://in.water.usgs.gov> – “Featured Projects”

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Mapper Demo:

<http://wim.usgs.gov/FIMI/FloodInundationMapper.html>